UNDERGRADUATE RESEARCH CO-OP FELLOWSHIP (URCF)

AEROSPACE ENGINEERING ENGINEERING

APPLICATION DEADLINE: April 29, 2024

PROJECT TITLE: <u>Development of autonomous control system for an air-bearing platform</u> for testing a satellite with a robotic arm

Physical Requirement : Need to work in the IRAS lab for most times Project's Technical Skills Requirement : AE, EE or ME students Project's Available Positions : 2

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Project Description

Design and implement an autonomous control software for an existing airbearing based 2D satellite mobile platform equipped with cold-gas propulsion thrusters and a robotics arm, as shown in the bottom figure in https://irasatuc.github.io/. This mobile platform allows to test a satellite (mockup) free-flying or -floating on a 2D space on the top of a 3m by 4m granite table. The test platform will be used to support experimental research of satellite or spacecraft guidance, navigation and control (GNC) in orbit. Vision and inertial sensors will be used for feedback control system. This project requires motion control system design, implementation, and testing which is a great opportunity of enhancing your knowledge, skills and experience in mechanical, electrical, aerospace, and systems engineering. The work regarding the onboard robotic arm will be a separate project. For more information, please contact Professor Ma at ou.ma@uc.edu.